The Garnett Passe and Rodney Williams Memorial Foundation
Frontiers in Otorhinolaryngology, Head and Neck Surgery

July 11-12, 1998
The Garvan Institute of Medical Research
384 Victoria Street, Darlinghurst
Sydney Australia

The Garnett Passe
and Rodney Williams
Memorial Foundation

The Foundation was established by the late Mrs Barbara Williams of Charleston, South Carolina to honour the memory of her two husbands, Garnett Passe and Rodney Williams. It is one of the largest bequests ever made to Australian medicine.

Before his death at the age of 48, Garnett Passe had acquired an international reputation as a leading otologist of the time.

The Garnett Passe and Rodney Williams Memorial Foundation

Frontiers in Otorhinolaryngology, Head and Neck Surgery
The Garvan Institute of Medical Research
384 Victoria Street, Darlinghurst, Sydney, Australia

Special Guest Chairman:
Dr James Snow
National Institute on Deafness and Other Communication Disorders, National Institutes of Health

Convenor:
Professor John Funder
Director, Baker Medical Research Institute

Guest speakers:
Professor Richard Doty
Smell and Taste Center, University of Pennsylvania
Clinical Studies of Olfaction

Dr Carter Van Waes
National Institute on Deafness and Other Communication Disorders, National Institutes of Health
Molecular Pathogenesis and Therapy of Head and Neck Cancer

Dr David Hanson
Department of Otolaryngology, Northwestern University Medical School
Objective Measurement of Laryngeal Function

Dr Leonard Rybak
Division of Otolaryngology, SIU School of Medicine
Outcomes of Research – Ototoxicity

Dr Patrick Brookhouser
Director, Boys Town National Research Hospital
Clinical Trials, Outcomes and the Future of Research in the USA

Professor Bruce Gantz
Department of Otolaryngology, University of Iowa
Development of Research – Cochlear Implant Research

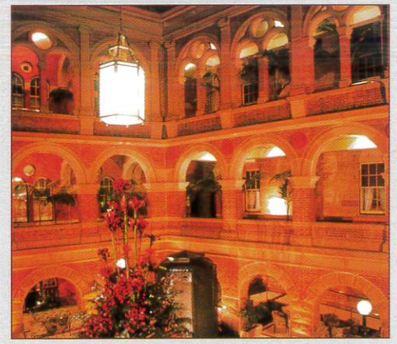
Professor Robert Kohut
Department of Otolaryngology, The Bowman Gray School of Medicine
ORL Research and its Promotion in the USA

Professor Gregory Wolf
Otolaryngology – Head and Neck Surgery, University of Michigan
Clinical and Basic Research Related to Laryngeal Cancer

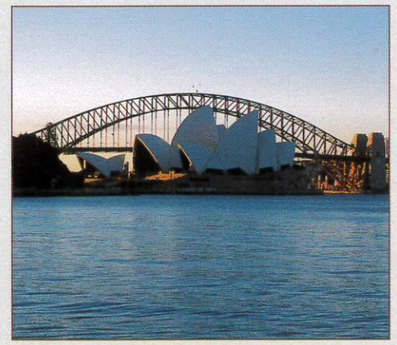
Dr George Gates
Virginia Merrill Bloedel Hearing Research Center, University of Washington
Outcomes of Research – Meniere's Disease

Associate Professor Anil Lalwani
Department of Otolaryngology, University of California
Cochlear Gene Therapy

The meeting will be held in the NAB auditorium of the Garvan Institute. Designed by architects Concrete Constructions, this venue combines a significant design statement with premium conference facilities.



The conference dinner will be held in the historic Treasury Room at the Hotel Intercontinental. Pre-dinner drinks will be served in the Cortile, a superb mezzanine space overlooking the central atrium.



Sydney in July. Many delegates will know Sydney well. However, for those who don't, Sydney is the ultimate harbour city. In mid-July, daytime temperatures are likely to be around 17°C (62°F).

The conference

The conference will be held in the Auditorium at the Garvan Institute. Abstract books, refreshments and lunches are included.

Accommodation

Special conference rates have been negotiated at the Hotel Inter-Continental. Bookings must be made on the registration form. You are welcome to extend your stay at this special rate.

City view $205 per night (single or double)

Harbour view $250 per night (single or double)

Hotel Inter-Continental
117 Macquarie Street, Sydney
Telephone +61 2 9230 0200 Facsimile +61 2 9240 1240

Travel

As you will be staying a Saturday night in Sydney, there will most likely be very economical promotional fares available. Alternatively, we are pleased to offer discounted but flexible airfares (approximately 50% off) with both Qantas and Ansett. These special economy fares are only available through Majestic International Travel and must be finalised by June 11.

Majestic International Travel, Princess Tower, Suite 502, 1 Princess Street KEW VIC 3101
Telephone 03 9853 5357 Facsimile 03 9853 9746 e-mail travel@majestictravel.com.au
Contact Ms Sheryl Nicholls or Mr Leo Adams

Conference dinner

The conference dinner (and parking) is included in your registration fee and will be held in The Treasury Room at the Hotel Inter-Continental. Partners are most welcome.

Registration

Complete the Registration Form and send to Meetings First, PO Box 666, Kew, VIC 3101 by June 12, 1998, along with the appropriate registration fee. Payment may be made by cheque payable to Meetings First or credit card.

Delegate registration fee: $250.00 (includes meeting, abstract book, lunches. dinner)

PhD Student fee: $25 per day (includes meeting, abstract book, lunch)

Day registration fee: $125 per day (includes meeting, abstract book, lunch)

Registation fees and accomodation deposits are refundable up to one month before the meeting. After that date, no refunds will be made. You may substitute another delegate at any time. Payments by credit card will attract the applicable merchant fee (Diners 3.75%, AMEX 3.1%, VISA 1.3%, Mastercard 1.3%, Bankcard 1.6%).

Conference organiser

Contact Gillian Butler or Jennifer Seabrook at Meetings First if you have any questions.
Telephone 03 9853 5538 Facsimile 03 9853 1806 e-mail meetings@turnsea.com.au

Cover: The Frilled Lizard, an inhabitant of Northern Australia, is distinguished by its aggressive posture which includes an open hissing mouth and display of a colourful scaly neck frill. The conference logo combines this unique Australian with one of Sydney's icons, the fantastic white sails of the Opera House.

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Programme and Abstracts

The Garnett Passe and Rodney Williams Memorial Foundation

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The Garnett Passe and Rodney Williams Memorial Foundation Frontiers in Otorhinolaryngology, Head and Neck Surgery Symposium Programme

Scientific Program Convenor : Professor John Funder

Special Guest Chairman : Dr James Snow, National Institute on Deafness and Other Communication Disorders, National Institutes of Health, Bethesda, Maryland

Saturday July 11

8.00 am	Opening	Dr Peter Freeman Chairman of Trustees Garnett Passe and Rodney Williams Memorial Foundation
	Co-Chairmen	Dr Peter Freeman Dr Anne Cunningham
8.05 - 9.00 am	Dr David Hanson ***Objective Measurement of Laryngeal Function***	
9.00 - 10.00 am	Professor Richard Doty ***Clinical Studies of Olfaction***	
10.00 - 10.30 am	Coffee	
10.30 - 11.30 am	Dr George Gates ***Outcomes of Research: Meniere's Disease***	
11.30 - 12.30 pm	Round table: Pathophysiology in Otorhinolaryngology Dr Anne Cunningham/Dr Alan MacKay-Sim (Co-Chairmen)	
12.30 - 1.30 pm	Lunch	
	Co-Chairmen	Dr Patrick Bridger Dr Andrew Sizeland
1.30 - 2.30 pm	Professor Gregory Wolf ***Frontiers in Clinical and Basic Research Related to Organ Preservation in Advanced Laryngeal Cancer***	
2.30 - 3.30 pm	Dr Carter Van Waes ***Molecular Pathogenesis and Therapy of Head and Neck Cancer***	
3.30 - 4.00 pm	Coffee	
4.00 - 5.00 pm	A/Professor Anil Lalwani ***Cochlear Gene Therapy***	
5.00 - 6.00 pm	Round Table 2: Molecular Biology in Otorhinolaryngology Dr John Shine/Dr Jim Pickles (Co-Chairmen)	

Sunday July 12

	Co-Chairmen	Professor Graham Clark Professor Bill Gibson
9.00 - 10 am	Professor Bruce Gantz ***Cochlear Implant Research***	
10.00 - 10.30 am	Coffee	
	Co-Chairmen	Professor James Snow Professor John Funder
10.30 - 11.30	Dr Patrick Brookhouser ***Clinical Trials, Outcomes and the Future of Research in the USA***	
11.30 - 12.30 pm	Professor Robert Kohut ***ORL research and its promotion in the USA***	
12.30 - 1.30 pm	Lunch	
1.30 - 2.30 pm	Round Table 3: Medical Research, ORL Research, USA, Australia Professor John Funder/Professor James Snow(Co-Chairmen)	
2.30 - 4.00 pm	Extended Coffee/High Tea, with informal discussion opportunities with all invited presenters	

The Garnett Passe and Rodney Williams Memorial Foundation

Frontiers in Otorhinolaryngology, Head and Neck Surgery

Abstracts

Objective measurement of laryngeal function

David G. Hanson, MD, FACS
Professor and Chairman
Department of Otolaryngology – Head and Neck Surgery,
Northwestern University Medical School, Chicago, Illinois

Historically laryngology has been an important part of our field of specialty and is currently an area of new growth and interest in the United States. However, laryngology differs from other subspecialties of Otolaryngology in that we have not had good measures of how successful we are in our treatment. We do not have a test comparable to the audiogram for measuring changes that we might be able to accomplish in the voice.

The issue for objective measurement of laryngeal function is not diagnosis, for we can usually hear the effects of notable vocal pathology and often accurately predict what we will see, and we have been able to see the larynx and vocal folds for diagnostic judgements for many years. Rather the problem is that we do not have good methods of quantifying change in voice quality with treatment and over time, so that we can assess outcomes across groups of patients and among different treatments. There is also a great deal that we do not understand about the physiology of voice production which requires means of measurement. Until we have suitable measurement techniques and a sound basic science base, the field of clinical voice care will remain empirical, highly variable in quality, and relatively unscientific.

Our research on objective ways of documenting laryngeal and vocal fold function over the past 20 years leads to the conclusion that there will never be a simple single measurement that adequately describes the information that we need to measure voice quality. Therefore as my laboratory has developed over the years, we have adopted a multiple measurement approach. This includes recording of acoustic signal, PGG, EGG, Flow, Pressure and visual image by stroboscoy and line scan camera. Our studies of these non-invasive measures in human patients and in controlled models lead to current observation about these methods. We will discuss data to support the hypothesis that photoglottograph (PGG) provides a reliable measure of the glottal aperture and accurately reflects the velocity of the epithelial wave during opening and closing movements.

EGG is affected by variables that are not necessarily important to phonatory physiology but in combination with other measures such as PGG provides a multi dimensional picture of vocal fold vibration. To appreciate this information we must use artificial intelligence and shape recognition computing strategies. The acoustic signal is useful in detecting subtle changes in voice quality over time, but does not provide information that can be directly related to mechanisms of dysfunction in most situations. Stroboscopy performed with PGG provides an accurate interpretation of the images and with a suitable distance reference can be used to measure mucosal wave velocity and the actual glottal aperture. Line scan cameras may eventually provide the same information more simply and directly. Sub-glottal pressure and flow can be measured non invasively and are valuable tools for understanding normal physiology and the effects of laryngeal pathology. Colour analysis of visual documentation appears to be valuable in following the course of diseases in which colour change is characteristic of the illness, such as chronic laryngitis.

In summary, there is a good deal of work to be done yet, but there are promising techniques and we are learning more every week. If there were more clinical laboratories pursuing this kind of work, progress would undoubtedly be a lot faster.

Clinical studies of olfaction

Professor Richard Doty, PhD
Professor and Director
Smell and Taste Center, Department of Otorhinolaryngology – Head and Neck Surgery
University of Pennsylvania Medical Center, Philadelphia, Pennsylvania

The senses of taste and smell monitor the intake of many environmental nutrients and airborne chemicals required for life and largely determine the flavor and palatability of foods and beverages. In addition to purveying aesthetic pleasures, these senses alert us to spoiled foods, leaking natural gas, polluted air, and smoke. Importantly, decreased olfactory function serves as an early marker for a number of serious age-related diseases,including Alzheimer's disease, idiopathic Parkinson's disease, and schizophrenia.

In this presentation, I will describe the basic anatomy and physiology of the human olfactory system and review studies from the University of Pennsylvania Smell and Taste Center on the influences of age, gender, and numerous disease states on the ability to smell. Specifically, psychophysical, electrophysiological, and imaging data will be presented to demonstrate how the olfactory system is altered by such factors. Recent work employing odor event-related potentials and functional magnetic imaging will be highlighted, with an emphasis on our recent findings demonstrating (i) the basis of olfactory loss in multiple sclerosis and (ii) specific right-side olfactory damage in patients with schizophrenia.

Supported by Grant PO 00161 from the National Institute on Deafeness and Other Communciation Disorders, National Institutes of Health.

Outcomes research in Meniere's Disease

George A. Gates, MD, FACS
Professor, Otolaryngology – Head and Neck Surgery
Director, Virginia Merrill Bloedel Hearing Research Center,
University of Washington, Seattle, Washington

INTRODUCTION

- The enigmas of Meniere's Disease
- Need for a conceptual paradigm shift
  - Syndrome, disorder, symptom complex, disease
- Opportunities for progress
  - Outcomes studies, randomized controlled clinical trials
  - Cellular and molecular pathophysiology, genetic analysis

BACKGROUND

- Physiology of endolymph
- Animal models vs humans
- Unilateral vs. bilateral cases (?Autoimmune inner ear disease)

CLINICAL TRIALS

- Medical therapy
  - Hydrochlorothiazide (Klockoff & Lindblom, 1967)
  - Dyazide (van Deeling & Huizing, 1986)
- Surgical therapy (Thimsen et al, 1982)
- NIDCD trial in planning (Gates et al., 1988)

OUTCOMES RESEARCH

- Disease-oriented measures
  - Vertigo, hearing, global well-being
  - AAO-HNS reporting guidelines
  - Vertigo diary
- Patient-oriented outcomes
  - Quality of life, impact on person, family employment, socialization
  - Menier's disease Patient-oriented Symptom Severity Index
- Economic outcomes
  - Lost wages, lost opportunities, health care costs

Frontiers in clinical and basic research related to organ preservation in advanced laryngeal cancer

Gregory T. Wolf, MD, FACS
Professor and Chair
Otolaryngology – Head and Neck Surgery,
University of Michigan, Ann Arbor, Michigan

The traditional management of advanced glottic or supraglottic cancers has consisted of total laryngectomy with or without post-operative radiation. The past 10 years have seen the rapid proliferation of new treatment paradigms for patients with advanced head and neck cancer that incorporate initial or neoadjuvant chemotherapy. These approaches were predicated on the hypothesis that potent chemotherapy regimens capable of effecting major tumor regressions in previously untreated patients would reduce tumor burden, allow modifications in traditionally morbid local therapies and have an impact on occult distant metastases. From the results of initial feasibility studies in the early 70's, many prospective randomized trials were conducted to test this hypothesis. The final results of these initial randomized trials were consistent in failing to show a significant survival benefit with the addition of neoadjuvant therapy. However, the studies were consistent in demonstrating that patients achieving a complete clinical regression of cancer after neoadjuvant chemotherapy enjoyed a survival advantage. Also, response to chemotherapy tended to predict a favorable overall response after subsequent radiation therapy.

In 1985, The VA Cooperative Studies Program initiated a prospective randomized trial to test whether induction chemotherapy followed by radiation for chemo-responders could be an alternative to total laryngectomy. Like its predecessor neoadjuvant trials, the VA Trial failed to demonstrate that the addition of 2-3 cycles of chemotherapy (cisplatin and 5-fluorouracil) could improve survival or disease-free interval. Overall survival was similar for both treatment groups with an overall 62% rate of preservation of the larynx among patients randomized to chemotherapy. Likewise, 66% of surviving patients retained a functioning larynx, although this group represented only 31% of the total number of patients initially randomized to chemotherapy. Long term follow-up (median 98 months) of this well studied cohort of patients continues to show similar survival curves with an overall survival rate of 35%. The best clinical predictors of successful larynx preservation were achievement of a complete response after chemotherapy, smaller tumor size (T_3 better than T_4) and lack of the need for a pre-treatment tracheostomy.

Analysis of neck disease documented that if a complete regression of clinical neck disease was achieved with neoadjuvant chemotherapy, radiation was quite effective in long term control of disease. However, if any palpable neck nodes remained after chemotherapy in patients with advanced (N_2, N_3) neck disease, it was unlikely that radiation alone was curative in the neck. These findings have prompted either incorporation of earlier salvage neck dissections in non-responders after chemotherapy or planned neck dissections after completion of radiation for patients with advanced, bulky neck disease.

In the successful organ preservation trials, most salvage surgical resections were performed as planned procedures after a failure of neoadjuvant chemotherapy. Thus, surgery is an integral part of these treatment paradigms. If such patients were treated with radiation alone or combined chemo-radiation, it is unlikely that they would have survival rates as high since immediate surgical salvage would be postponed for those 15-20% of patients who would have been selected for early salvage, thus leading to delays in the diagnosis of persistent or recurrent disease. It has been shown that surgical salvage after combinations of chemotherapy and radiation is one of the most challenging oncologic surgical endeavors.

Major complication rates approach 60-70%. Complications may be reduced by meticulous surgical technique, free-tissue transfer reconstructions and comprehensive nutritional and metabolic support. The extent of a salvage procedure must be aggressive and completely encompass the original tumor volume and any areas of progressive disease. Pre-treatment tattoos of the primary tumor resection margins are valuable adjuncts.

Emerging laboratory data indicate that tumor kinetics and alterations in genes that regulate cell proliferation and apoptosis may be critical determinants of tumor response to chemotherapy and radiation and potentially useful aids in patient selection. In the VA Study, retrospective analysis has determined that smaller tumor size, aggressive infiltrating histology and increased DNA content were associated with chemotherapy response. Tumor proliferation measured by proliferating cell nuclear antigen (PCNA) expression in tissue sections also correlated with primary tumor response. However, the best indication of successful organ preservation was primary tumor immunohistologic expression of the mutant p53 gene product and high PCNA expression. Newer data indicate that genes regulating apoptosis such as BCL2 and BCLx are associated with chemo-response and organ preservation. These markers are providing clues to the identification of more precise correlates of chemo-radiation sensitivity that may eventually allow selection of patients for primary surgery or for radiation therapy/chemotherapy combinations.

The next frontier in neoadjuvant chemotherapy approaches for organ preservation will be improved patient selection and refinements in treatment paradigms that will allow shortening the length of treatment and address the issues of disseminated disease and poor overall survival. In the absence of therapies that improve survival, organ preservation studies have re-focused the attention of surgeons on quality of life issues. With this renewed interest, issues of cost, morbidity of combining therapies, the inefficiencies of planned re-treatment and the prolonged length of treatment are being debated. This debate will continue to stimulate new studies which will lead to further therapy refinements. It remains axiomatic that treatment of potentially curable patients with newer combinations of chemo/radiation should not and must not occur outside of the setting of carefully designed clinical trials.

Molecular Pathogenesis and Therapy of Head and Neck Cancer

Carter Van Waes, MD, PhD.
Acting Clinical Director and Chief,
National Institute on Deafness and Other Communication Disorders,
National Institutes of Health, Bethesda, Maryland

Clinicians have long noted that squamous cell carcinoma of the head and neck is associated with an increase in angiogenesis and inflammatory responses in the patient. These patient responses have been found to be associated with autonomous expression of proangiogenic and proinflammatory cytokines IL-1, IL-6, IL-8 and GM-CSF by squamous cell carcinomas. Expression of these cytokines is increased in association with tumors which grow rapidly and metastasize to the lymph nodes and lungs. Increased expression of the homologue of IL-8 in an experimental murine model of squamous cell carcinoma has been found to promote increased growth and metastasis, as well as the angiogenesis, inflammation and cachexia that are observed in patients. The increase in expression of these cytokines was found to be due to the constitutive activation of members of the Rel family of oncogenes in head and neck cancer. Activation of these transcription factors was also found to be important for activation of genes which promote survival and radiation resistance of squamous cell carcinoma. Thus, pharmacologic and molecular therapies targeted at the IL-8 cytokine receptor and activation of Rel oncogenes may provide new approaches for adjuvant and combination therapy for patients with head and neck cancer.

Cochlear Gene Therapy

Anil K. Lalwani, MD, FACS
Director, Laboratory of Molecular Otology, Epstein Laboratories,
Department of Otolaryngology – Head & Neck Surgery,
University of California, San Francisco, California

Gene transfer for experimental and therapeutic purposes has been successfully accomplished in a variety of tissues. Currently, there are several hundred ongoing clinical trials evaluating gene therapy in treatment of cancer, neurodegenerative disorders, muscular disorders, and hematologic diseases, among others. However, until recently, the potential application of gene therapy in the inner ear had not been explored. In the last two to three years, significant progress has been made in the development of cochlear gene therapy.

Several critical questions have to addressed as one considers gene transfer in the cochlea: first, what agent (viruses vs. liposomes) will be used to effect gene transfer?; second, how will the agent be delivered?; and how will successful gene transfer be detected. To address the first issue, a variety of vectors including adeno-associated virus (AAV), adenovirus, herpes virus, and lentivirus as well as liposome are available to mediate gene transfer in the cochlea. We have chosen AAV, a non-pathogenic human parvovirus, for introducing genes into the inner ear. AAV is ideal for several reasons: it has a broad host range and is able to infect human, monkey, canine and murine tissues; it is able to infect and integrate into non-dividing cells with high frequency; and it has able to effect prolonged transgene expression. AAV's ability to transfect non-dividing cell is critical in the cochlea given that the cells of the auditory neurosensory epithelia are postmitotic. A osmotic minipump was used to deliver the virus into the cochlea. Finally, the ß-galactosidase gene as well as the green fluorescent protein was used to determine successful expression of AAV mediated gene transfer.

Our laboratory has been successful in transferring foreign genes into the cochlea and have it expressed. We have been able to demonstrate the expression of the reporter gene in variety of tissue within the cochlea for up to 6 months. Expression of the foreign gene was detected in nearly all tissue types within the cochlea including spiral ligament, spiral limbus, spiral ganglion and the organ of Corti. Surprisingly, the was evidence of expression in the contralateral cochlea. The virus may have reached into the other ear via the blood circulation, through the bone marrow space of the temporal bone or via the cochlear aqueduct. We have been able to use this gene therapy to protect the spiral ganglion cells from degeneration following ototoxic exposure.

In summary, safe, stable, and therapeutic gene transfer is feasible in the cochlea. The ability to introduce new genes into the cochlea with the aid of viral vector has several potential scientific and clinical applications. One immediate basic application of our ability to introduce genes into the inner ear will be to understand the function of specific gene whose mutation is causally linked to syndromic or nonsyndromic hearing disorders. Therapeutic application includes the introduction of neurotrophic factors following sudden or progressive hearing loss to alleviate or prevent further deterioration in hearing or as an adjunct to cochlear implantation. These gene therapy studies will aid in designing therapeutic strategies to alleviate auditory dysfunction as well as contributing towards molecular genetic analysis of hearing.

Cochlear Implant Research

Bruce J. Gantz MD, FACS and Iowa Cochlear Implant Team
Professor Gantz is Professor and Head,
Department of Otolaryngology – Head and Neck Surgery,
University of Iowa, Iowa City, Iowa

The Iowa Cochlear Implant Clinical Research Center is a multidisciplinary research team that has been addressing issues related to the clinical application of cochlear implants in adults and children since 1981. The Center is highly dependent on the interactions of multiple projects from different disciplines. The questions we address are at some level driven by the interactions among experts from the fields of bioengineering, audiology, language, speech pathology, auditory physiology, psychophysics, psychology, and music.

The overall goal of the research is to improve individual performance of deafened adults and children and study the impact of the cochlear prosthesis on their development. It is hypothesized that outcome can be significantly enhanced by improving device fitting algorithms based on the individuals residual auditory function. 191 individuals that have been implanted are engaged in this research. Electrophysiologic and psychophysical measures are being used to define speech coding algorithms. Five research projects, and a patient care and technical support core are addressing the following aims: 1) determine whether individual variables, such as precise intracochlear localization of residual auditory function, can be used to define speech processor fitting parameters; 2) conduct field trials using different speech processor programs to determine the effectiveness of these speech coding strategies on a population that displays a wide range of performance; 3) continue longitudinal studies aimed at understanding the effect that age of implantation has on the development of speech perception, speech production, language, and sign in a population of prelingually deafened children; 4) determine if a structured listening protocol with broad range of musical stimuli can enhance user satisfaction and consequently quality of life; 5) determine preoperatively which ear should receive a cochlear implant; and 6) measure the binaural effects of cochlear implants on a select population that receive binaural implants.

This report will provide an update on our research effort including a neural response telemetry system that has been incorporated into a new implant that can measure precise whole nerve action potentials in different areas of the cochlea; These measures can be used to fit an implant in an infant; speech perception, production and language skills of a group of implanted prelingually deafened children; effect of binaural implantation, and the effect of duration of deafness and residual hearing on implant performance in both adults and children.

Clinical Trials, Outcomes and the Future of Research in the USA

Patrick E. Brookhouser, MD
Director, Boys Town National Research Hospital,
Omaha, Nebraska

The U.S. biomedical research enterprise, particularly clinical research, is in a period of significant transition. While congressional appropriations for federal support of research through agencies such as the National Institute of Health, have more than kept pace with inflation, the availability of research support derived from clinical income in academic medical centres has been diminishing. Conversion of the US health care payment system from traditional fee-for-service to a variety of managed care arrangements has decreased payment to academic physicians while, at the same time, directing patients who would be potential candidates for inclusion in clinical studies away from relatively high cost academic medical centres to lower cost community based health providers. At the same time, managed care organisations are requiring that proposed diagnostic and treatment plans be supported by evidence of quality health outcomes and cost effectiveness. In response to these pressures for clinically relevant research, several initiatives are being supported by the National Institute of Deafness and Other Communication Disorders, including 5 National Multipurpose Research and Training Centres and 2 Large MultiCentre Clinical Trials Cooperative Groups. The American Academy of Otolaryngology-Head and Neck Surgery has also instituted the Cooperative Outcomes Group for ENT (COGENT). The goals and programs encompassed by these initiatives will be described.

ORL Research during Residency Training and Faculty Involvement in the U.S.A.

Robert I. Kohut, MD, FACS
James A Harrill Professor and Chairman, Department of Otolaryngology,
The Bowman Gray School of Medicine, Wake Forest University,
Winston-Salem, North Carolina

The essential for on-going research and the development of enthusiasm for research by otorhinolaryngology residents is an environment of faculty activity in research, communication regarding new ideas and a resident curriculum requirement. The history of the effect of one such environment will be used to illustrate the geometric progression, through successive generations, of from few to many clinician/investigators. The John R. Lindsay, M.D.-Cesar Fernandez, M.D. model will be used to illustrate this impact. It influenced others to emulate the process and thereby created daughter environments of the same type.

The key elements necessary for this environment include a departmental leader interested in the promotion of research and a full-time investigator who is an enthusiastic teacher.

Broader, long-term research projects allow for the engagement of fellows and residents in training in these activities. Other prerogatives exist because of the presence of central laboratory resources fostering different, individually developed research projects. The laboratories activities can be vast or smaller in scale. It appears that the essential is the environment.

As an example of a moderate size research laboratory, involving both clinical research and clinically related basic research, those of the laboratories of the Department of Otolaryngology of Wake Forest University School of Medicine will be presented as an overview. Examples of the research products of high school and medical students, non-U.S.A. citizen fellows, and the residents in training will be reviewed. Our NIH funded activities using temporal bone histopathologic paradigms, will be discussed.

Perhaps of particular interest are components of our perilymphatic fistula studies, which relate, in many ways, to studies concerning Meniere's syndrome. The now twenty-six year project developed from clinical observations. It was later addressed in the laboratory using temporal bone histopathologic study methods. The paradigms, which are, in effect, prospective studies, will be described. The development of histopathologic diagnostic criteria, the testing of clinical diagnostic criteria, and the development of special temporal bone resources which allow insight into the prevalence of those at risk for perilymphatic fistula, will be reviewed. Some interesting findings concerning histologic changes in cases, some of which were attributed to Meniere's syndrome, will be presented. Future needs and goals of this research will be identified. New research opportunities, hitherto not possible, which are a spin-off of the products of the perilymphatic fistula studies, will also be identified.